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Edited by F. R. Moulton and Sam Woodley.

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A Tree in Spring

To a farmer a tree is an object that sometimes interferes with the cultivation of his field, at other times provides shade for his cows, and may become a source of wood for his stove. To an artist it is a delightful shape and combination of colors set in a complex environment. To a chemist and physicist it is a relatively porous aggregation of molecules, each of which is an assemblage of atoms and electrons held together by mysterious electrical bonds. To a botanist it is a living organism, drawing water and minerals up from the soil through countless rootlets, breathing in and out atmospheric gases, transforming and storing energy from the sun in billions of its cells, manufacturing leaves and fiber and flowers and seeds, and forming the latest link in one branch of a long evolutionary chain.

To him who in the love of Nature holds
Communion with her visible forms, she speaks
A various language.—Bryant.

In a sense a tree in spring is a miracle. With lengthening days and the return of warm showers and soft southwest winds, its hard, bare branches that have withstood the shocks of winter blasts quickly become resplendent with tender, luxuriant foliage. Was the miraculous transformation caused by lengthening days, or warm showers, or soft winds, or by all combined? Did the application of fertilizers ever increase a farmer's crops? Did a sulfa compound ever cure a person suffering from an infection? Did a surgeon ever save a human life?

Strictly speaking, the answer to all these questions is in the negative, for in each case the result

had many other necessary antecedents. Since the factors enumerated are only a few out of many known and unknown ones that must exist simultaneously in order that the result shall follow, it would be erroneous and misleading to single out any particular one as *the* cause. The dormant tree bursts forth into glorious life, in part because of sunshine and showers and warm air; and, in part, because of its stored-up food and its preformed buds ready to expand; and, in part, because of the composition and structure and characteristics of its various kinds of cells. An attempt to answer any of the other questions propounded would lead into similar complexities; and the more that is known about the field in which they respectively lie the more numerous and puzzling would be the unanswered questions they present. Into such reflections is one led by a tree in spring!

There are other questions even more interesting and much more difficult than those pertaining to the resurgent life of a tree in spring. What course of evolution have trees traversed in their development from lowly forms in palaeozoic slime to the present monarchs of field and forest? And even the more difficult question: what were the influences, internal and external, that were associated with each of the myriad steps of their long ascent? There are no present answers to most of these questions, and even if there were it would not be possible to discuss them here. All that is necessary for present purposes is to note that the processes of evolution depend upon a very great variety of factors. The uncritical would call some of them "causes" and others of them merely "permissive conditions." To illustrate the point by a very simple hypothetical example, cosmic rays or radium emanations may have affected the genes of some ancient animal whose descendants were finally the mighty dinosaurs; and, at the same time, climatic changes may have made available the abundant food necessary for the sustenance of such giant beasts. Under the hypothesis, both conditions—the altered genes and the abundant food—were absolutely necessary for the evolution that occurred. Was the evolution due to the first or the second

factor, or to both? The habits of our minds are such that we are likely to assert that the former alone was "*the cause*," yet it would be difficult to present a logical formulation of the hypotheses that would justify or even point toward that conclusion.

In the hypothetical case considered, there were two factors on which the evolution depended; in actual cases of evolution the relevant factors are innumerable. Evidently there is much more to evolution than mere natural selection or survival of the fittest or mutation of genes. Doubtless all of these factors are involved, as well as the extraneous but no less real ones that were referred to above as "permissive conditions." To ignore or refuse to consider any of them would be inexcusable.

In the January issue of the BULLETIN it was suggested that the acquisition of the powers of speech by prehistoric man modified his environment with "*resulting* acceleration of the evolution of the cerebral cortex." It was not suspected that any one would interpret this statement to mean that merely talking or listening to speech would "produce" the conjectured result. But if the power of speech was possessed by those having the best and largest brains, and if it gave advantages to those having this unique power, both of which seem probable, then the conclusion is sound. Whether it is or not, the idea is probably worth a moment's attention, for at least occasionally by following the imagination into the unknown, particularly if it is checked by observation and reason, do we discover new worlds. As an illustration of the opposite method, a retired professor of journalism, commenting in the March issue of the BULLETIN on the possible role of speech in the evolutionary history of man, confessed, somewhat plaintively, that he was one of the "poor devils" who have persisted a lifetime in looking into their own minds without getting any light on the evolution of the human brain. If he had consulted his scientific colleagues, they probably would have suggested that he be less persistent in his futile quest and look at all nature around him for "she speaks a various language" and might whisper to him things deeper than his philosophy.

But this is wandering far from thoughts of a tree in spring. Perhaps too much has been said about the tree, and the great problems it suggests for consideration by the curious mind, and not enough about spring, "with all her reckless birds upon the wing." Spring is the season when young men's thoughts turn to well-known subjects, and maidens sing with the birds. But

the "poor devils" for whom the spring and summer have passed, the poor old devils who see not the glories of the setting sun but the earth's dark shadow sweeping up the eastern evening sky, and hear the shrill winds of approaching winter—well, may they never be moved in bitterness to say with a famous character in Milton's *Paradise Lost*,

Seasons return, but not to me returns
Day, or the sweet approach of even or morn,
Or sight of vernal bloom, or summer's rose,
Or flocks, or herds, or human face divine;
—F. R. M.

Further Comments on Human Evolution

Among the comments on "Animal and Human Evolution" that appeared in the January A.A.A.S. BULLETIN, only two were critical of the position taken, that of Professor Pitkin, published in the March issue, and one by Dr. M. F. Ashley Montagu, who stated that all the evidence he is acquainted with would disprove the position taken. Of the remainder, the two that appear below were received after the article on "A Tree in Spring" was in the proof stage. The first is from a member of the National Academy of Sciences, a distinguished zoologist of the Scripps Institute of Oceanography; the second is from Viscount Bledisloe, former member of the Council of the British Association for the Advancement of Science, Chancellor of Bristol University and Ex-Governor of New Zealand.

Although a very few biologists now regard the Lamarckian principle of the "inheritance of acquired characters" as a probably important factor in evolution, it seems to me that your statement that the acquisition of the power of speech in man resulted in the "acceleration of the evolution of the cerebral cortex" may be fairly maintained without any such assumption. The mental evolution of man, at least during the period of savagery, was probably largely due to the preponderant selection (survival) of individuals having keener minds. Nitwits and morons were too great luxuries to be tolerated in those days. We may well believe that the cerebral cortex, among other things, was here involved.

Now as to the part played by speech in the matter. Natural selection is effected through the environment, in this case partly through the human environment. In an environment in which men spoke, the "brainy" individual had a greater competitive advantage than in an environment in which everything was settled by brute force. Mental (brain) evolution favored the growth of speech, of course. On the other hand, is it not equally probable that speech as a social institution furnished an environment in which mental superiority was at a progressively higher premium? The two might be expected to interact and to progress together. I don't know whether this is exactly what you had in mind in writing the sentences criticized by Pitkin. If so, it seems to me that you were

on altogether safe ground, and that Pitkin's criticisms were futile as well as "sassy."

F. B. SUMNER.

I always read your articles in the A.A.A.S. BULLETIN with much sympathy and edification. This applies very particularly to your "Editorial" in the January issue on "Animal and Human Inheritance"—as also to Dr. Caldwell's article on Post War Education—II Science—both of them illuminating, thought-compelling and inspiring.

Wishing the Association and its excellent BULLETIN all success.

With kind regards

BLEDISLOE.

The Advancement of Science

From time to time throughout human history there have been extraordinary periods characterized by mass migrations, religious crusades, movements for political freedom, new philosophies, and the like. The present period is the age of science and its applications, and it is widely regarded as the golden age of man. Naturally there have been questions about the future of science, some persons thinking that it is in its youth and others that it is likely to decline. The most conspicuous example of fears for its future, at least if it remains in the hands of those who have made it, found expression in the Kilgore Bill that was before Congress last year.

However, there are evidences on every hand that science in the immediate post-war period will receive generous support. The National Association of Manufacturers has a committee on scientific research, whose most difficult problem appears to be to find methods of spending money for research wisely. In spite of the pressures of war, offers of support of research are appearing with increasing frequency. For example, the Williams & Wilkins Company has just announced the establishment of the Passano Foundation, Inc., for the support of scientific research and the publication of its results, the Westinghouse Electric and Manufacturing Company has underwritten investigations of housing construction at Purdue University, and the Bausch & Lomb Optical Company has established extensive scholarships in the University of Rochester for students of science.

Aside from universities and research foundations, various other means for advancing science have been initiated. For example, biological laboratories, such as that at Woods Hole, Mass., have been established at advantageous places throughout the world. Astronomical observatories, supported by foundations and private sources, are equally widespread. Expeditions into tropical

jungles, desert areas and high latitudes have received generous support.

The AAAS-Gibson Island Conferences

During the past few years a new method of advancing science has been developing under the auspices of the Association—the AAAS-Gibson Island Conferences. These conferences are on subjects of current importance in various branches of chemistry and related fields. For example, during the coming summer among the eleven conferences there will be one on "Catalysis" and another on "Cancer." Each conference lasts for a period of five days, Monday to Friday, inclusive. They are held on Gibson Island, a beautiful privately controlled island in Chesapeake Bay about twenty miles south of Baltimore and connected with the mainland by a causeway. As a rule only one paper is presented at the morning session; the afternoon is given over to informal discussions and recreation; and in the evening another session is held, at which usually only one paper is presented. The attendance is limited to 60, partly because there are not enough accommodations for a large number and partly because a larger number would interfere with their intimate character and decrease their value. Under these ideal conditions scientists from universities, scientific foundations and industries mingle and confer together not only on their current work but also on what they hope to do. Their freely expressed conjectures are often no less valuable than reports of their established results.

The AAAS-Gibson Island conferences were initiated and have been directed by Dr. Neil E. Gordon, secretary of the section on chemistry of the Association during the past seven years. He began with two conferences in the summer of 1938 and increased to eleven in 1943. They are held on the property of the Association consisting of a large house and annex situated among trees on the highest hill on the island. In these buildings men attending the conferences are housed; meals are taken at the Gibson Island Club. The charges are intended to cover as nearly as possible the operating expenses and maintenance.

Naturally the purchase, improvement and furnishing of this property cost a considerable sum of money, all of which has been secured by Dr. Gordon. In the early days of the project, a few leading industrial laboratories were invited to contribute \$1,000 each toward the purchase and improvement of the property. Recently the gifts have been voluntary and offered in excess of the requirements. The only special privilege a donating laboratory has is that of nominating

one person for attendance at each conference. The remaining places are open to scientists from university and foundation laboratories, and to representatives of industrial laboratories that have not made contributions toward the physical facilities for holding the conferences.

Contributing Companies

Each of the following companies contributed on behalf of its scientific laboratories \$1,000 toward the purchase, remodeling and equipment of the facilities for holding the AAAS-Gibson Island conferences:

American Cyanamid Company
Atlantic Coast Fisheries Company
The Barrett Company
Bausch & Lomb Optical Company
Bell Telephone Company
Brown Instrument Company
Campbell Taggart Research Corporation
Celanese Corporation of America
Davison Chemical Corporation
Distillation Products, Inc.
Dow Chemical Company
Ethyl Gasoline Company
Firestone Tire and Rubber Company
Fleischmann Laboratories, Standard Brands, Inc.
Gelatin Products Company
General Aniline and Film Corporation
General Electric Company
B. F. Goodrich Company
Hercules Powder Company
Leeds and Northrup Company
Arthur D. Little
Mereck and Company, Inc.
Monsanto Chemical Company
National Aniline Division, Allied Chemical and Dye Corporation
Norton Company
Okonite Company
Pittsburgh Plate Glass Company
Research Corporation
Shell Development Company
Standard Oil Company of California
Standard Oil Company of Ohio
Standard Oil Development Company
The Texas Company

The Central Industrial Area

Centering roughly in Cleveland and extending from Detroit to Pittsburgh, there is a great industrial area not surpassed in magnitude and diversity of its manufacturing anywhere else in the world. The large cities in this region include Detroit, Cleveland, Pittsburgh, Buffalo, Cincinnati, Rochester, Akron and Toledo, with a combined population of more than six million. Smoke from their factories clouds their skies and there is soot in their streets. From one point of view the scene is depressing, but from another

it is thrilling and even inspiring, as Sandburg has shown in one of his poems. A thundering train will move one to bare his head in awe while it passes!

Behind the grime and noise of industry in great manufacturing cities there is intelligence at work, guided by high purposes. Even in the factories themselves and in their connections with the remainder of the world there is an orderliness known in few of the relations among men. Science flourishes in all these industrial centers, not only the science that pertains directly to steel and petroleum and rubber and motor cars and electric lights, but all the sciences and arts. One of the great telescopes has long been pointed to the sky from Pittsburgh and in that city a planetarium has been provided for the masses, the mountings for the greatest telescopes are manufactured in Cleveland, and the most novel astronomical observatory in the world is in a suburb of Detroit. Medical research flourishes in Cleveland and Rochester, and everywhere are found technical schools, colleges, universities, libraries and churches. To be quantitative in a particular case, there are 40 scientific societies and regularly-meeting scientific organizations in Pittsburgh alone, with a combined membership exceeding 20,000.

It is in Cleveland, one of these industrial cities, that the Association will hold its annual meeting next September 11-16. Nearly 300 members of the Association live in Cleveland and approximately 1,000 elsewhere in Ohio. About 270 members of the Association are residents of Columbus and nearly 200 live in Cincinnati. There are about 400 in Detroit and Ann Arbor, 300 in Pittsburgh, 250 in Buffalo and neighboring Rochester, while among our scientific colleagues in Toronto across the line there are about 60. There are now more members of the Association in the central industrial area around Cleveland than there were in the entire United States until after 1900.

It is difficult to realize how rapidly science has expanded, for in the rush of events attention has been too much diverted by the advantages of its applications. At the Cleveland meeting the marvelous recent advances will be explained, wondered at, and recorded. But the programs will be cast in a larger mold. Scientists will undertake to determine first for their own satisfaction what it is that they have been doing for, and to, the world. The war has suddenly made them realize that they have been wielding stupendous social forces, as well as scientific and technological. They will undertake these inquiries for the sake also of society in general, for it is becoming

clearer daily that this is one world not only in the political sense but also in the social sense. To paraphrase a celebrated saying by Abraham Lincoln, the world cannot prosper in permanent peace half scientific and half superstitious.

Conference on Food and Nutrition

This AAAS-Gibson Island special research conference is particularly timely both because of serious world-wide problems in human nutrition and because of the great scientific activity in this field. Robert Calvert and Richard J. Block are chairman and vice chairman, respectively, of the conference; Henry C. Sherman, John C. Baker, and Roy C. Martin are members of the executive committee. The completed program of the conference on Food and Nutrition is as follows:

Monday, July 17

Dehydrated Meats. H. R. KRAYBILL.
Fatty Acid Compounds in the Living Cell. W. R. BLOOR.

Tuesday, July 18

Yeast as a Human Food and as a Biological Tool in Determination of Vitamins. CHARLES N. FREY.
Production, Properties and Uses of Amioca (a tapioca-like starch now being made from waxy grains). H. H. SCHOPMEYER.

Wednesday, July 19

Choline and Related Compounds in the Nutrition of Farm Animals. T. H. JUKEB.
Newer Trends in Efficient Utilization of Protein Foods. FRANK L. GUNDERSON.

Thursday, July 20

Nutritional Problems that Arise in Large Scale Cookery. LT. COMDR. C. A. McCAY.
Chemical Properties and Physiological Functions of the Plasma Proteins. EDWIN J. COHN, L. E. STRONG, J. L. ONCLEY, W. L. HUGHES, JR., S. H. ARMSTRONG, JR., J. T. EDSALL, J. D. FERRY, L. PILLEMER and D. J. MULFORD.
Determination of Choline. DAVID GLICK.
Biological and Nutritive Properties of Oils and Fats in Relation to Their Structure. J. PETER KASS.

Friday, July 21

The Contribution of Food Technology to the War. MAJ. VIRGIL O. WODICKA.

With one exception, the program for each day of the conference consists of two papers, one presented in the morning and one in the evening. The morning paper will be followed by discussions that may be continued until luncheon at the Gibson Island Club. The afternoon is left open for informal discussions and such recreations as golf, tennis, swimming, boating and walking. The evening papers immediately follow dinner

and informal discussions will continue as long as may be desired.

Persons desiring to register for this or any other of the AAAS-Gibson Island conferences should write to Dr. Neil E. Gordon, Chemistry Department, Wayne University, Detroit 1, Mich., who is director of the conferences.

University Publications in Wartime

Much has been written about the great contributions American universities are making to the war by releasing their scientists and laboratories for work for the Army and Navy; by the loss of instructors to the armed services; by making available their vast resources for giving instruction to trainees; and by filling innumerable important civilian positions from members of their staffs. The statements that have been made about these contributions do not give the universities more credit than they deserve for their contributions of manpower.

The universities have supported the war efforts of this country in another quite unprecedented and unexpected way. Their presses have turned out hundreds of thousands and probably millions of copies of books and pamphlets for use by our armed forces and other personnel in foreign countries. The variety of the subjects discussed in these publications is as surprising as the number of copies printed; they range from religion to gardening.

To start with something far removed from airplanes and bombs and submarines and bazookas, The University of Chicago Press has provided nearly 300,000 copies of E. J. Goodspeed's translation of the New Testament for the use of our soldiers, sailors, marines, and coast guard forces. As a guide on the home front, Rutgers University early in 1942 published *Home and Vegetable Gardening*, of which more than 750,000 copies have been sold. Stanford University published a book on Alaska wild flowers, the first edition of which was almost entirely taken in a few months by our forces along the Alcan Highway. The sales of Brodie's *Layman's Guide to Naval Strategy*, published by Princeton University, are now approaching 45,000.

As might be expected, numerous books on foreign languages have been published, not only on European tongues but on Asiatic as well. Harvard has nine books on Chinese and Japanese and California nearly as many, while Chicago has three books in this field, one a dictionary of military terms prepared since the Pearl Harbor

attack. The last word in this dictionary is the Japanese for *headache*. Columbia has a Chinese pocket dictionary and Stanford's Chinese reader has already had five printings. Michigan and Minnesota have published books on Malay, Cambridge (England) one on Arabic and Oxford one on Sanskrit. Strange as it may seem, nearly all of these books have been sold by the thousands.

Books on geography, history, economics, sociology, capital and labor, race problems, philosophy, theology, international relations and postwar problems have appeared in such great numbers that they are hardly surpassed by those in the fields of science that have immediate applications in the war. Perhaps the outstanding publication that appeared in 1943, though its appearance during the war period was quite accidental, was *A Dictionary of American English*, prepared at The University of Chicago through an interval of 18 years under the editorship of Sir William A. Craigie, James R. Hulburt and a staff of American scholars. This distinguished work won for The University of Chicago Press the Carey-Thomas Award for "the best example of creative publishing in the year 1943." When the printing of the Armed Services Editions of this dictionary was started, 50,000 copies of each of 30 titles, out of a total of 350 titles, were issued per month. At present 80,000 copies of each title are called for by the Army and Navy.

Two reflections are stimulated by the floods of publications flowing from the university presses of this country (and England) during the war period. One is that these publications may be affecting seriously the inadequate supply of paper now existing. The February *Publisher's Weekly*, after commenting upon the restrictions the War Production Board is imposing upon the use of paper for publishing such books as those that have been mentioned, quoted from an editorial in the *New York Times* of January 20 to the effect that all book publishing in the United States employs fewer than 5,000 men and women, and that book manufacturing employs only a little more than three times as many. It stated that the paper needed for the 275,000,000 volumes turned out last year was only six-tenths of one percent of the paper processed last year, and that the cloth used for binding them was less than one-tenth of one percent of the country's production of "gray goods." How inadequate is our comprehension of this new world which our technology has created!

The second train of thought relates to the effects on our armed forces of the millions of volumes they are reading. These millions of men are not in the happy and somewhat carefree atmosphere of our educational institutions. Instead, the novelties and stern realities of their environments and what they face make them thoughtful. They are reflecting on the problems of human relations and on the meaning of life. Now, while the intellectual and emotional patterns of their lives are being established, the universities of the country are addressing them abundantly and generously in the most effective way they can be reached. It is to be hoped that, reciprocally, on their return to civilian life they will stimulate in all education a purposefulness and a thoroughness it has too often lacked in the past.

Local Meetings of National Societies

References have been made several times in the BULLETIN to the advantages of local or branch meetings of national scientific societies, particularly in time of war. The experience of the Society of American Bacteriologists excellently illustrates what may be, and is being, done.

In the final three months of the past year branches of this society held 11 meetings in the Middle West and East Central States. The attendance ranged from about 40 in Geneva, N. Y., to over 250 at the University of Illinois. These branch meetings were not organized primarily because the burden of railroad travel prevented long journeys to national meetings. Instead, they were held in conformity with a general policy of the society. Some branches hold several meetings a year, the Washington branch having held its 134th meeting last November 23.

The 45th general meeting of the society will be held in New York City on May 3, 4 and 5, 1944, under the sponsorship of the New York City Branch.

In every respect the meeting promises to be a successful one. There are 54 papers on general bacteriology, 55 papers on medical bacteriology, immunology and comparative pathology, and 22 papers on agricultural and industrial bacteriology. In addition, the Committee on Teaching will present a special program on training of public health and medical bacteriologists and bacteriological technicians, as well as training of students for positions in public health laboratories. Special features include a program of films to be shown by the Committee on Materials for Visual Instruction in Microbiology. The an-

nual dinner will be held on Thursday, May 4, at 8 o'clock, at which time the annual presidential address will be delivered on the subject, "Where Does the Trail Lead."

The May Scientific Monthly

The May issue of *The Scientific Monthly* starts with four illustrated articles which together occupy 32 pages. Then follow five articles without illustrations which range from a critique of medical education to natural history and philosophy.

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Science on the March

Book Reviews

Comments and Criticisms

Members who receive *Science* free with their memberships may subscribe for *The Scientific Monthly* at the special member's rate of \$3 per year. Persons subscribing for *The Scientific Monthly* at this time receive back numbers from January when volume 58 began. However, the limitations on paper will make it necessary in the very near future to decline to accept further subscriptions unless lighter paper of the required quality can be obtained.

The American Geographical Society

The American Geographical Society is devoted to the advancement of geography in its scientific and cultural aspects, its practical applications, and its bearing on fundamental problems of human existence and human relationships in different regions of the earth.

Organized in 1851-52, the Society is the oldest institution of its kind in the country. The founders and early patrons were leaders in the professional and business life of New York City. Men of cultivation and of vision, they sought to establish "in the chief city of the United States a place where may be obtained accurate information on every part of the globe." Their generous contribution of funds and their discriminate gifts of books and maps created the nucleus of the Society's library. They encouraged "such exploring expeditions as seem[ed] likely to result in valuable discoveries in geography and the related sci-

ences" and to this end lent support to, and maintained contacts with, many explorers. One of the most precious documents in the Society's archives is a letter from Livingstone, dated "Banks of the Zonga, Oct. 8, 1851," which was read at the second meeting, in the spring of 1852. The Arctic expeditions of De Haven, Kane, Hayes, and Hall in the fifties, sixties, and seventies were sponsored by Henry Grinnell, a founder of the Society and its President from 1861 to 1864.

During the first 60 years of the Society's life the enlargement of its collections, the promotion of exploratory activities, the publication of a journal, the maintenance of a lecture program each year, and, after 1895, the awarding of medals were the principal activities, and membership was largely confined to New York City and vicinity. The following period, which was marked by a widening of the institution's influence, began about 1912. In that year, in commemoration of the fiftieth anniversary of the founding of the Society, geographers from many parts of the world were invited to be guests of the Society in an excursion through the United States, led by the late Prof. W. M. Davis. Forty-three foreign and more than 60 American geographers took part in this unusual trip, on which 21 states were visited in a special train engaged for the purpose. The excursion has since been remembered as an outstanding event in the history of the geographical profession.

In 1915 the Council adopted a new policy. In choosing as first Director, Dr. Isaiah Bowman, who combined uniquely in his person scholarship and administrative genius, the Council brought about a broadening of the Society's interests which has been maintained to the present time. During his 20 years of service Dr. Bowman gathered together, and furnished constant inspiration to, a distinguished staff of professional and technical experts. Emphasis was laid on the ideal of public service—on the duties and opportunities of the Society as a national institution concerned with human welfare—and in pursuit of this ideal many new enterprises have been launched.

From the beginning the Society has published a journal, of which the name was changed in 1901 from *Journal* to *Bulletin of the American Geographical Society* (49 vols.), and in 1916 to *The Geographical Review* (quarterly; 32 vols. through 1942). Since 1915 the Society has also undertaken the publication of several special series of geographical books and monographs, which comprised in March, 1943, 70 separate works, including 55 bound volumes. The Society's collections now contain 113,000 volumes of books and periodicals, 21,600 pamphlets, 110,100 maps, 2,070 atlases, and 27,800 photographs. A classified bibliography of accessions to the collections has been issued monthly (except August and September) in mimeographed form since January, 1938, under the title *Current Geographical Publications*.

The staff of the Society numbers some 40 persons and is supervised by a Director. Besides the Library

and editorial departments, there are three departments devoted to research. (1) The Department of Hispanic American Research, organized in 1920, is carrying out a comprehensive program of studies in the geography of the entire American continent from the Mexico-United States boundary to Cape Horn. This activity has been largely concentrated on the production of a great new map of the American continent and outlying islands south of the United States on the scale of 1:1,000,000. Of the 107 sheets of this map 104 have been completed. A 4-volume "Catalogue of Maps of Hispanic America" was published in 1930-32. In 1923 a department was established to carry on studies which since 1938 have been pursued separately by (2) the Department of Mathematical Geography, concerned primarily with research in photogrammetry and other methods of surveying, but also with other mathematical aspects of geography; and (3) the Department of Exploration and Field Research (more or less inactive during the war), which keeps in touch with exploratory activities, affords facilities for map making from materials furnished by explorers, and investigates problems connected with the equipment, organization and conduct of exploring expeditions. The Society has also inspired and given direction during the last 25 years to notable studies of human settlement in different regions and of the geography of the polar regions.

In 1918 the Society's building was headquarters of a Governmental organization of experts known as the "Inquiry," of which the purpose was to gather material for the Peace Conference at Paris. Thousands of books and maps from the Society's collections were loaned to the American Commission to Negotiate Peace, and Dr. Bowman served as Chief Territorial Adviser of the delegation. At the present time the Society is again engaged in important work for the Government; its facilities in staff and collections are being extensively employed in the preparation of maps and reports for several governmental agencies.

The affairs of the Society are governed by a Council of eight officers and 15 Councilors. There are three classes of members: Honorary Members, Corresponding Members and Fellows. Election to the first two classes (which now comprise 50 persons) is in recognition of distinguished services in the promotion of geography. The Society also honors unusually praiseworthy work in geographical exploration, research, or education by the bestowal of four gold medals. The number of Fellows (annual dues \$10) is not limited, the qualifications for election being an interest in exploration and travel and in the spread of geographical knowledge. The total membership reached a peak of 5,902 in 1931, followed by a decline to about 3,000 during the depression. In the last two years there has been a slight increase, the membership on January 1, 1944, being 3,660.

The Society's headquarters are in a building of its own at Broadway and 156th Street, New York City.—JOHN K. WRIGHT, Director.

Membership in the Association

Eligibility for Membership

Membership in the Association is open to all persons engaged in scientific work, whether in the fields of the natural or the social sciences; to all amateur scientists, whatever their special interests; and to all who desire to follow the advances of science and its effects upon civilization. Members having made substantial contributions to the advancement of science are eligible for election as fellows.

Dues and Publications

Membership dues are \$5 per year, including subscriptions for the monthly A.A.A.S. BULLETIN and either the weekly journal *Science*, now in its 99th volume, or *The Scientific Monthly*, now in its 58th volume. *Science* is a journal for professional scientists; the *Monthly* is a nontechnical journal for the intelligent public. The Association also publishes technical symposia and nontechnical books on science that are available for members at prices substantially below those to the public.

Organization and Meetings

The Association was founded in 1848, with an initial membership of 461. Papers in its early programs were classified as either natural philosophy or natural history. Now its work is organized under 16 sections and 189 associated societies having a total membership of over 500,000. Its annual meetings are the greatest regular gatherings of scientists in the world.

Nominations and Applications for Membership

Members may submit nominations for membership at any time, and persons desiring to become members can obtain membership application forms from the Office of the Permanent Secretary, the Smithsonian Institution Building, Washington 25, D. C.

Changes of Address

New addresses for the Association's record and for mailing the journals *Science* and *The Scientific Monthly*, as well as the A.A.A.S. BULLETIN, should be in the Office of the Permanent Secretary, Washington 25, D. C., at least two weeks in advance of the date when the change is to become effective.

Officers of the Association

President, Anton J. Carlson; *Permanent Secretary*, F. R. Moulton; *General Secretary*, Otis W. Caldwell; *Treasurer*, W. E. Wrather; *Director of Publications*, F. L. Campbell; *Assistant Secretary*, Sam Woodley.

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